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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,986	02/20/2004	Shuhei Yada	249108US-3 CONT	5626

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EXAMINER

MANOHARAN, VIRGINIA

ART UNIT PAPER NUMBER

1764

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/781,986

Applicant(s)

YADA ET AL.

Examiner

Virginia Manoharan

Art Unit

1764

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 26 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4 and 21-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 21-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

Claims 23, 27 and 29-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The numerous recited "or more" e.g., only: "column diameter of 1.2 m or more" in claim 23 and in claim 27 are not specified (values) in the claims nor identified in the specification.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 4, 21-22 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al (6,878,239) in view of Hamamoto et al (6,676,808) and Schaub et al (5,702,504).

Matsumoto discloses substantially the features of the apparatus as claimed. See Figs. 1-4. The apparatus of Matsumoto differs from the claimed invention in that claim 1, for example, recites a "reflux tank having an inlets, an outlet and a vapor phase connecting port, the outlet being connected to the distillation column.."; and further recites a "pressure control valve connected to the exhaust gas conduit of the vacuum generator; and a pressure controller connected to the pressure control valve, the pressure controller having a pressure detection line". However, the above limitations are known expediciencies in the art as taught by Hamamoto (Fig. 1); and further by Ichikawa (Fig. 1). It would have been obvious to one of ordinary skill in the art

to incorporate a reflux tank to the apparatus of Matsumoto as taught by Hamamoto, so as to prevent, inter alia, aggregation of the easily polymerizable compound and repressing the formation of polymer by supplying reflux liquid to the top of the distillation tower of Matsumoto. See col. 7 lines 45-66 through col. 8, lines 1-9 of the Hamamoto's reference. It would have been obvious to further incorporate the above claimed pressure controls to Matsumoto's apparatus as such is conventionally done in the art as taught e.g., at col. 7, lines 10-27 of Schaub et al; and inasmuch as Matsumoto suggests incorporating a pressure gauge (7) and air control valve (8) in its system as shown e.g., in Fig. 1.

Claims 3, 23 and 29-30 rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al in view of Hamamoto et al and Schaub et al as applied to claims 1-2, 4, 21-22 and 24 above, and further in view of Mizutani et al (6,755,943).

Mizutani '943 discloses the perforated tray as claimed in claim 3. See the abstract and Figs. 1, 5(a) and 5(b). To incorporate Mizutani '943 perforated tray to the apparatus of Matsumoto, modified by Hamamoto and Schaub would have been obvious to one of ordinary skill in the art in order to further inhibit polymerization during the distillation process of Matsumoto. See e.g., Mizutani at col. 1, lines 52-56. The claimed variables e.g., column diameter, oxygen concentration etc. in claim 23, the values and diameter e.g., in claims 30 and 29 respectively are all deemed to be result-effective variables which ordinarily are within the skilled of the art.

Claims 25-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto in view of Hamamoto and Schaub as applied to claims 1-2, 4, 21-22 and 24 above, and further in view of Mizutani et al (6,632,329).


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Mizutani '329 teaches that the claimed "wherein the column main body is provided with a pot part projecting downward in the lower end thereof, and the introducing tubular member connects to the side face of the pot part..." in claim 25 is known in the art. See Figs. 1, and 3-6, and the abstract of Mizutani '329. To incorporate the above teaching of Mizutani to the apparatus of Matsumoto, modified by Hamamoto and Ichikawa would have been obvious to one of ordinary skill in the art in order to carry out the distillation process of Matsumoto in a stable fashion as the structure would effectively prevent entrainment of gas into the liquid due to occurrence of vortex in a distillation tower bottom. Note col. 3, lines 35-40 of Mizutani '329.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Virginia Manoharan whose telephone number is 571-272-1450.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola, can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
VIRGINIA MANOHARAN  
PRIMARY EXAMINER  
ART UNIT 138 / 1764  
8/24/06